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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/659,599   | 09/11/2000  | Glenn H. McGall      | 2719.2001-000       | 4766             |
| 33880  | 7590        | 01/10/2005           | EXAMINER            |                  |
| HAMILTON, BROOK, SMITH & REYNOLDS, P.C.<br>530 VIRGINIA ROAD<br>P.O. BOX 9133<br>CONCORD, MA 01742 |             |                      | EPPS FORD, JANET L  |                  |
|  |             | ART UNIT             | PAPER NUMBER        |                  |
|  |             | 1635                 |                     |                  |

DATE MAILED: 01/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                           |                  |
|------------------------------|---------------------------|------------------|
| <b>Office Action Summary</b> | Application No.           | Applicant(s)     |
|                              | 09/659,599                | MCGALL, GLENN H. |
|                              | Examiner                  | Art Unit         |
|                              | Janet L. Epps-Ford, Ph.D. | 1635             |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 25 October 2004.

2a) This action is **FINAL**.                                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-23 and 30-38 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-23 and 30-38 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) Notice of References Cited (PTO-892)                                    4) Interview Summary (PTO-413)  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    Paper No(s)/Mail Date. \_\_\_\_\_.  
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)  
6) Other: \_\_\_\_\_.

**DETAILED ACTION*****Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10-25-04 has been entered.

***Response to Amendment***

2. The Declaration under 37 CFR 1.132 filed 10-25-04 is insufficient to overcome the rejection of claims 1-23 and 30-38 based upon 35 USC 103(a) as set forth in the last Office action because the conclusions stated in the McGall Declaration were not commensurate in scope with the claimed invention. The conclusions described in the McGall Declaration were based upon the inability of a nitrobenzylic compound recently fabricated by the Affimetrix research group to photocleave at 365 nm. The McGall Declaration concluded that this particular nitrobenzylic compound was not useful in methods of DNA synthesis based upon this observation. Based upon this evidence, the McGall Declaration concluded that "Nitrobenzylic compounds are preferred photosensitive protective groups as is said in the '087 patent. However, as seen from the evidence above, the '087 and the '348 publication do not render every nitrobenzylic compound (or multi-ring compounds having a nitro group) obvious as desirable photosensitive photoprotecting groups." (See page 4, ¶ 12 of the Declaration).

3. The evidence provided by the McGall Declaration is not commensurate in scope with the claimed invention because: The instant claims are not limited to photocleavable groups, in particular see claim 30, the claim merely recites wherein Y1 is a group. Additionally, the instant claims are not limited to the wherein the groups are removable at 365 nm wavelengths. Finally, the instant claims are not limited to methods of DNA synthesis. Therefore, the evidence provided by the McGall Declaration does not address the full scope of the claimed invention.

***Claim Rejections - 35 USC § 103***

4. Claims 1-23, and 30-38 remain rejected under 35 U.S.C. 103(a) as being unpatentable over McGall et al. (5,412,087; US'087) in view of McGall et al. (WO 98/39348 A1; WO'98), for the reasons of record set forth in the Office Action mailed 4-09-2003.

5. Applicant's arguments filed 10-25-04 have been fully considered but they are not persuasive. Applicants traverse the instant rejection on the grounds that based upon the evidence provided by the McGall Declaration, "the '087 Patent does not render every desirable photocleavable protecting group obvious. The '348 Publication is related to bicyclic and polycyclic groups and therefore does not remedy the deficiencies of the '087 Patent. Because many protecting groups are not cleavable with 365 nm light, as demonstrated above, it is unexpected that each of the groups recited in the pending claims are cleavable with 365 nm light. One of ordinary skill in the art would have had to perform extensive experimentation in order to prepare suitable compounds, such as those recited in the instant claims. It is emphasized that the ability to be cleaved by 365 nm light and not a shorter wavelength) is important for protecting groups used in

oligonucleotide synthesis. Because each of the protecting groups recited in the claims have at least one property that is unexpected in view of the cited references, Claims 1-23 and 30-38 are not obvious over the '087 Patent in view of the '348 Publication. Many of the protecting groups exemplified in the cited references are not substantially cleaved by 365 nm light. In contrast, each of the claimed photocleavable protecting groups has this desirable property."

6. As stated above, Contrary to Applicant's assertions it is noted that the instant claims are not limited to photocleavable groups. Additionally, the instant claims are not limited to the wherein the photolabile groups are removable at 365 nm wavelengths. Finally, the instant claims are not limited to methods of DNA synthesis. Since the evidence provided by the McGall Declaration is not commensurate in scope with the claimed invention, the McGall Declaration is not sufficient to overcome the instant rejection.

7. Moreover, as stated previously, it is clear that compounds of the present invention are encompassed by the "core structure" Ar-C(R1)(R2)-O-C(O)- of the compounds taught by McGall et al. (WO'98). Although Applicants argue that the substituents of the aromatic portion of the protecting groups of McGall et al. (WO'98) are preferably electron-donating groups, therefore one of ordinary skill in the art would not be lead to prepare a protecting having an electron withdrawing group such as a nitro group. First it is noted that Applicants are limiting the scope of the McGall et al. reference to one particular embodiment, however it is clear that other substituents into the aromatic ring are also contemplated. Moreover, absent evidence to the contrary, McGall et al. (WO'98) clearly state that substitutions of the Ar group may be mono-, di- or tri-

substituted, independently, with alkyl, lower-alkyl, or a nitro group (*inter alia*; see page 6, lines 1-4). These substitutions are all considered to be functionally equivalent substituents that would produce a functional photocleavable group.

***Claim Rejections - 35 USC § 102***

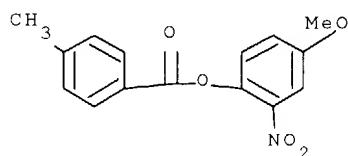
8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 30 is rejected under 35 U.S.C. 102(b) as being anticipated by Pacifici et al. (US 3879356).

10. Claim 30 is drawn to compounds having the structure M-Y<sub>1</sub>. Pacifici et al. describes light-sensitive polymeric compositions. In one particular embodiment Pacifici et al. discloses Benzoic acid, 4-methyl-, 4-methoxy-2-nitrophenyl ester (RN: 56564-38-36). This compound has the following structure:



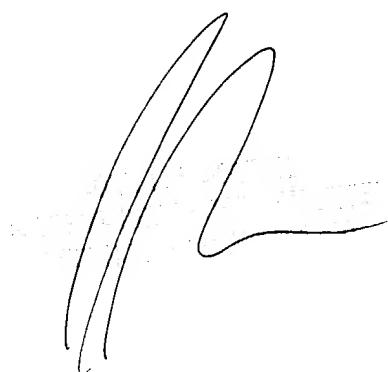
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janet L. Epps-Ford, Ph.D. whose telephone number is 571-272-0757. The examiner can normally be reached on Monday-Saturday, Flex Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John L. LeGuyader can be reached on 571-272-0760. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Janet L. Epps-Ford, Ph.D.  
Patent Examiner  
Art Unit 1635

*JLE*

A handwritten signature in black ink, appearing to read "Janet L. Epps-Ford, Ph.D.", is positioned to the right of the typed name and title. The signature is fluid and cursive, with a large, stylized "J" at the beginning.